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U. S. DEPARTMENT OF AGRICULTURE
BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE
FOREST INSECT INVESTIGATIONS

Forest Insect Survey
BLACKS MOUNTAIN EXPERIMENTAL FOREST
California Forest and Range Experiment Station
Seasons of 1944 and 1945

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Annex I

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ABSTRACT OF RESULTS

Forest Insect Survey
Blacks Mountain Experimental Forest
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MANAGEMENT STATUS OF THE EXPERIMENTAL FOREST* (Map)

	1943	1944	1945**
Virgin pine acreage***	4,847	3,602	3,327
Cut-over pine acreage:			
Sanitation-salvage cuttings	3,157	2,550	2,550
Sanitation-salvage cuttings and silvicultural cutting combined	1,326	2,983	3,258

BARK BEETLE INFESTATIONS IN VIRGIN PINE STANDS

Total pine timber killed (Table 1):			
Number of trees over 12" DBH	68	37	32
Volume, board feet	99,521	65,794	53,591
Average volume per acre, bd. ft.	20.5	18.3	16.1
Percentage of pine stand	0.13	0.11	0.10
Classification	endemic	endemic	endemic
Trend (Figure 1)	down	down	up
Primary insect species:			
Western pine beetle in ponderosa pine			
Jeffrey pine beetle in Jeffrey pine			
Control work recommended			none

BARK BEETLE INFESTATIONS IN CUT-OVER PINE STANDS

Total pine timber killed (Table 2):			
Number of trees over 12" DBH	9	8	7
Volume, board feet	10,047	2,810	7,302
Average volume per acre, bd. ft.	2.6	0.6	1.4
Percentage of residual stand	0.02	0.01-	0.01
Control work recommended			none

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*For all compartments exclusive of area occupied by methods-of-cutting plots.
**As of July 1, 1945.
***Cumulative to year shown.

Forest Insect Survey
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INTRODUCTION

Periodic surveys of the Blacks Mountain Experimental Forest[1/] have been made since 1937 to record the amount of timber killed each year by bark beetles and other forest insects. This information is needed by the California Forest and Range Experiment Station to maintain its stand inventory of the intensively managed experimental forest and to adjust cutting schedules in order to prevent threatened epidemic losses or to salvage timber killed as a result of prevailing infestations. Cooperative research studies being conducted at Blacks Mountain by the Berkeley laboratory also depend upon the detailed record of insect-killed timber obtained from the surveys. These studies are being carried on to determine the mortality ratios of the insect risk classes developed by the laboratory in 1937 and to test the effectiveness of the sanitation-salvage cuttings made annually on the experimental forest since 1938 as an insect control measure. An exceptionally good basis for the testing of insect survey methods is also provided for by the steadily increasing amount of insect-caused timber mortality statistics emanating from the surveys.

The surveys employ standard bark beetle "spotting" technique[2/] to completely cover the 9,134 acres of virgin and cut-over timber on the experimental forest. The 1937 survey was conducted by the experiment station at which time the insect-caused mortality from 1933 to 1936 was also recorded. All of the surveys since 1938, however, have been made by the Berkeley laboratory but with the occasional assistance of members of the experiment station staff.

The entire experimental forest was covered in the 1945 survey (see map) which was conducted during the period of June 6 to July 4 by Messrs. John E. Patterson, Clarence E. Startt and the writer of this laboratory. It completed the record of trees killed by insects in 1943 and 1944 in parts of the forest not covered by surveys in these years and it recorded from the entire forest the 1945 infested trees which had appeared up to July 1945.

1/ Guide to the Blacks Mountain Experimental Forest, a sustained yield experiment in ponderosa pine in northeastern California. California F. & R.E.S. Berkeley, California. 1938. Multilithed.
2/ Field manual of bark beetle survey methods, California Region. Philip C. Johnson. Forest Insect Laboratory; Berkeley, Calif. May 1936. Revised.

Inasmuch as only parts of the experimental forest were covered by surveys during 1943 and 1944, complete summaries of the insect-caused timber mortality for these years will be included in this report as well as a discussion of infestation conditions which prevailed then.

INFESTATION CONDITIONS IN VIRGIN COMPARTMENTS

Characteristics of the Current Infestations.

The infestations of the western pine beetle (Dendroctonus brevicomis Lec.) in ponderosa pine and of the Jeffrey pine beetle (D. jeffreyi Hopk.) in Jeffrey pine were decidedly endemic during 1943 and 1944. Both insects exhibited a high degree of selectivity in their choice of host trees, seeking almost entirely the more decadent trees in the over-mature age classes. Nearly all of these trees, which occurred singly and well scattered through the stands, appeared to have been of high insect risk prior to attack. Lightning-struck trees representing all age classes and degrees of risk and vigor were relatively abundant in the experimental forest during these two years and a surprisingly large number of them were subsequently infested by bark beetles.

As is quite frequent during periods of endemic infestations, the attacks of the western pine beetle were interspersed on many infested trees with those of the so-called secondary insect species -- the emarginate ips (Ips emarginatus Lec.), the Oregon pine engraver (I. oregoni Eichh.) and the California pine flatheaded borer (Melanophila californica Van Dyke). These same insects were often found associated with attacks of the Jeffrey pine beetle but, on the whole, the latter's attacks appeared to be more self-sustaining.

It is yet too early to judge the 1945 infestations on the strength of the data obtained from the survey in June of this year. They did not appear much different in character, however, than those in 1943 and 1944.

Trend of the Current Infestations

The year-to-year trend of the pine bark beetle infestations since the establishment of the experimental forest is best illustrated in Figure 1. That part of the graph between 1937 and 1944 is based upon the complete record of the average board foot per acre mortality in virgin compartments as obtained from the surveys, based upon the 1937 level. From 1933 through 1936 the graph is based upon the mortality estimates from the Eastern Lassen Working Circle of the Lassen National Forest adjusted to the 1937 level of the experimental forest. The graph clearly shows the course of the combined western pine-Jeffrey pine beetle infestations which resulted in the killing of an average of 334 board feet of ponderosa and Jeffrey pine per acre in 1934, 65 board feet per acre in 1937 and only 18 board feet per acre in 1944. There are indications that the general decline in the pine infestations which began in 1936 has just about run its course and that an increase will be noted in 1945 once the mortality totals for this year are complete.

Insect-caused mortality in white fir and incense cedar has been so small that it has not been possible to plot accurate infestation trends for these tree species. Incense cedar losses and those for fir were greater soon after the experimental forest was established than they are now, however. Current mortality is so low as to be practically negligible.

Current Timber Mortality.

The timber mortality resulting from insect infestations in the virgin stands of the experimental forest during the 1943-45 period, as disclosed by the survey, has been summarized by blocks in Table 1. Certain obvious conclusions may be drawn from an examination of these data: (1) losses in all tree species, both by number of trees and actual volume and by percent of stand, were extremely endemic; (2) most of the losses occurred in ponderosa pine with a much less amount in Jeffrey pine and a minuscule amount in white fir and incense cedar; (3) losses appeared to be more or less evenly distributed over the forest; (4) quantitative pine losses showed little difference as between 1943 and 1944; and (5) early season 1945 pine losses very nearly approached the level of losses for the full 1943 and 1944 calendar years.

The principal insect problem in the experimental forest is concerned with the activities of bark beetles in the mature ponderosa and Jeffrey pine stands. The gross insect-caused mortality in these two species together averaged only 21 and 18 board feet per acre in 1943 and 1944 - equivalent to a loss of 0.13 and 0.11 percent of the pine stand in these respective years. These are the lowest annual rates of pine mortality reported in the virgin stands of the forest since its establishment in 1933 and, as such, they are a far cry from the 334 board feet per acre killed during 1934 when the last beetle epidemic reached its peak. Notwithstanding this fact, the relatively low current mortality must be reckoned with in the intensive forest regulation being carried out at Blacks Mountain by the forest experiment station.

The timber mortality caused by the beetles since the beginning of their attacks in the 1943 season seems to have been uniformly distributed in the virgin stands. It did not appear to have been influenced, either quantitatively or geographically, by natural forest conditions in one part of the experimental forest or another or by the movement of the relatively heavy experimental cutting operations during this time.

Some concern may be occasioned by the magnitude of early season 1945 losses shown in Table 1. Ordinarily surveys made before July account for only a small proportion of the losses which may be expected to occur during the full calendar year. The survey showed that the trees infested in the virgin stands prior to July of this year very nearly equalled in amount the volume of trees killed during all of 1944. If it is assumed that a sizable proportion of the 1945 mortality will occur after the survey was completed in July, it seems almost inevitable that the full 1945 mortality will exceed

Table 1. Insect-caused* timber mortality in virgin stands, by tree species, 1943-1945. Blacks Mountain Exp. Forest, California.

Part 1. TOTAL

Block	Tree Spp.	Trees Infested 1943 Timb. Acres	No. of Trees	Volume b.m.	Trees Infested 1944 Timb. Acres	No. of Trees	Volume b.m.	Trees Infested 1945** Timb. Acres	No. of Trees	Volume b.m.
A	PP	568.8	5	10,558	323.9	1	2,307	323.9	3	9,222
	JP					1	5,195		6	11,522
B	PP	941.5	17	21,896	746.6	11	17,831	746.6	3	6,454
	JP		3	3,759		1	428			
	WF		1	480						
C	PP	1425.0	16	24,460	976.2	10	14,750	701.4	8	9,314
	JP					1	2,307			
	WF		3	5,552		3	1,788			
G	PP	808.9	4	6,714	615.6	4	11,674	615.6	3	2,748
	JP		3	6,715		1	2,307		1	5,732
	WF		1	1,798						
P	PP	1102.4	18	21,953	939.5	6	7,777	939.5	8	8,599
	JP		2	3,466		1	1,218			
	WF		4	4,303						
	IC		1	583						
Total	PP	4846.6	60	85,581	3601.8	32	54,339	3327.0	25	36,337
	JP		8	13,940		5	11,455		7	17,254
	WF		9	12,133		3	1,788			
	IC		1	583						

Part 2. AVERAGE PER ACRE, PINE ONLY

Block	1943 Stand b.m.***	Infested 1943 Volume b.m.	% of Stand	1944 Stand b.m.	Infested 1944 Volume b.m.	% of Stand	1945 Stand b.m.	Infested 1945** Volume b.m.	% of Stand
A	12,225	18.6	0.15	13,102	23.2	0.18	13,102	64.0	0.49
B	17,453	27.2	0.16	16,804	24.6	0.09	16,804	8.6	0.03
C	17,195	17.2	0.10	16,873	15.1	0.10	16,694	13.3	0.08
G	13,818	16.6	0.12	12,842	22.7	0.18	12,842	13.8	0.11
P	16,887	23.1	0.14	17,134	9.6	0.06	17,134	9.2	0.05
Aver.	15,028	20.5	0.13	15,899	18.3	0.11	15,780	16.1	0.10

*Exclusive of infested trees previously wind-thrown, lightning-struck, mechanically damaged or infected with Fomes annosus at root collar.

**Includes only trees infested prior to July 1945, probably 25-50 percent of expected mortality for full calendar year.

***From 1933-34 cruise of the California Forest and Range Experiment Station, not corrected for intervening growth or drain.

that of 1944. This would then mean the ending of the period of declining beetle infestations which began in 1936 and continued unabated except for a brief interlude of increasing infestations in 1939 and 1940.

INFESTATION CONDITIONS IN CUTOVER COMPARTMENTS

Experimental cutting operations were begun at Blacks Mountain by the forest experiment station in September 1937 and continued on a relatively small scale until 1941. These were sanitation-salvage cuttings recommended by this laboratory to "bug-proof" certain high insect hazard areas in the experimental forest in order to eliminate, as much as possible, the factor of insect-caused drain from the sustained yield experiment designed for the forest. Cutting was resumed in 1943 on a larger scale which, for the most part, combined sanitation-salvage and silvicultural release cuttings into one operation. Since the sanitation-salvage cuttings removed an average of only 15 percent of the pine stand and the combined sanitation-salvage and silvicultural release cuttings 30 percent, the cutting program to date has moved rather swiftly over a comparatively large proportion of the forest. As of 1943, 1944 and July 1, 1945, acreage cut in the various compartments, exclusive of that in the method-of-cutting plots, was as follows:

Method of Cutting	Cumulative Acreage Cut To: 1943	1944	1945
Sanitation-salvage	3157	2550*	2550
Silvicultural release combined with sanitation-salvage	1326	2983	3258
Total	4483	5533	5808

*Excludes 607 acres re-logged with separate silvicultural release cutting.

In referring to the present cutover areas on the experimental forest cognizance must be made of the fact that the residual pine stands still contain many of the structural characteristics of the mature virgin stands, particularly in the matter of density and age classes. However, the silvicultural and entomological reactions which are occurring in them -- viz., increased growth and lowered insect-caused mortality -- definitely establishes them in the cutover category.

Current Pine Mortality in the Residual Stands.

Practically every compartment cutting made thus far at Blacks Mountain has employed the principles of the sanitation-salvage method of cutting, either separately or combined with silvicultural cuts, so it is natural to expect

that subsequent insect-caused pine mortality has declined. This aspect of the cuttings has been the subject of separate intensive studies by the Berkeley laboratory 1, 2/ which have determined the magnitude of the decline in mortality for periods of one to six years following the cuttings. Measurements of the current mortality in cutover compartments obtained by the survey, shown in Table 2, also show the relation between the mortality on uncut and cut compartments of the experimental forest. A comparison of corresponding data in Tables 1 and 2 show that current losses in the residual stands of the cutover compartments are about one-tenth of those in the virgin stands.

The characteristics of the current beetle infestations in the residual stands also differed slightly from those in the virgin stands. Since there were few high risk trees left in the residual stands after cutting, such trees did not make up a very large proportion of the total number of infested trees in these stands. A considerable proportion of the infested trees on recently cut compartments were scarred or otherwise damaged in logging.

Some concern was felt in June by the experiment station staff over the heavy attacking of some four million board feet of felled and unbucked pine timber by several species of bark beetles. After it was felled the timber laid in the woods some four to six weeks awaiting the drying up of logging roads which would permit its removal. It was during this time it became heavily infested. At the time of the survey the broods appeared to be developing quite successfully. The material was removed in normal logging operations before any emergence had occurred, thus removing the potential threat of the surrounding green timber being infested from the emerging population. Whether this would have occurred or not cannot be ascertained for there are no records in the western pine region of any similar occurrence. Experience has shown that most slash-bred insect populations do not develop successfully and the emergence which does occur is most often absorbed by other fresh slash when it is available, as it would have been at Blacks Mountain. In this particular case the felled material effectively trapped a sizable beetle population which was ultimately destroyed when the timber was logged and milled before it had a chance to emerge.

1/ Bongberg, J. W. Effectiveness of sanitation-salvage logging in reducing insect-caused loss, Blacks Mountain Experimental Forest, Season of 1940. Report of the Forest Insect Laboratory, Berkeley, California. May 12, 1941.

2/ Johnson, Philip C. Effectiveness of sanitation-salvage logging in reducing subsequent insect-caused pine mortality for periods of one to six years. Blacks Mountain Experimental Forest, California. Forest Insect Laboratory, Berkeley, California. Manuscript.

Table 2. Insect-caused ponderosa-Jeffrey pine mortality in cutover stands, 1943-1945. Blacks Mountain Experimental Forest, California.

Part 1. TOTAL

Block	Trees Timb. Acres	Infested 1943 No.of Trees	Infested 1943 Volume b.m.	Trees Timb. Acres	Infested 1944 No.of Trees	Infested 1944 Volume b.m.	Trees Timb. Acres	Infested 1945* No.of Trees	Infested 1945* Volume b.m.
A	231.8			476.7			476.7		
B	209.4	1	588	404.3	1	937	404.3		
C	926.0			1374.8	1	186	1544.0	2	3,135
G	1845.4	7	7,457	1899.2	4	1422	1899.2	3	1,485
P	580.3	1	2,002	743.2	2	265	743.2	2	2,682
Total	3792.9	9	10,047	4898.2	8	2810	5067.4	7	7,302

Part 2. AVERAGE PER ACRE

Block	1943 Stand b.m.**	Infested 1943 Volume b.m.	Infested 1943 % of Stand	1944 Stand b.m.	Infested 1944 Volume b.m.	Infested 1944 % of Stand	1945 Stand b.m.	Infested 1945* Volume b.m.	Infested 1945* % of Stand
A	11,033			9,937			9,937		
B	13,664	2.8	0.02	11,637	2.3	0.02	11,637		
C	13,680			12,395	0.1	0.01-	12,336	2.0	0.02
G	12,310	4.0	0.03	11,958	0.7	0.01	11,958	0.8	0.01
P	16,381	3.4	0.02	15,059	0.4	0.01-	15,059	3.6	0.02
Aver.	13,269	2.6	0.02	12,328	0.6	0.01-	12,312	1.4	0.01

*Includes only trees infested prior to July 1945, probably 25-50 percent of expected mortality for full calendar year.

**From 1933-34 cruise of the California Forest and Range Experiment Station, not corrected for intervening growth or drain.

INSECT CONTROL RECOMMENDATIONS

There are no infestations now prevalent in the experimental forest requiring either direct control or indirect control measures which would involve changes in the cutting schedules now set up for the remainder of this season.

APPENDIX TABLE 1. List, by board-foot volumes, of coniferous trees killed on compartments during 1943, 1944 and spring of 1945. Blacks Mountain Experimental Forest.

BLOCK A.

Compartment	Status Virgin	Status Cut	Tree Spp.	Infested Trees Marked 1943	1944	1945
A 18-12				-	-	-
A 18-16	*		PP	1218	-	-
	*		PP	2307	-	-
	*		JP	-	-	773
	*		JP	-	-	2634
	*		JP	-	-	186
	*		JP	-	-	2307
	*		JP	-	-	2634
A 19-19	*		PP	1464	-	-
	*		PP	-	-	5195
	*		JP	-	-	2988
A 19-22				-	-	-
A 20-13				-	-	-
A 21-10	*		PP	2307	-	-
	*		PP	-	2307	-
	*		PP	-	-	1720
	*		PP	-	-	2307
A 21-17				-	-	-
A 23-13	*		JP	-	5195	-
A 23-19	*		JP	1218L	-	-
A 25-17	*		PP	3262	-	-

Symbol: L = Lightning-struck

Appendix Table 1 (continued)

BLOCK B.

Compartment	Status		Tree	Infested Trees Marked		
	Virgin	Cut	Spp.	1943	1944	1945
B 22-4	*		PP	773	-	-
	*		PP	773	-	-
	*		PP	2002	-	-
B 24-4	*		PP	118	-	-
	*		PP	186	-	-
	*		PP	234	-	-
	*		PP	773	-	-
	*		PP	981	-	-
	*		PP	1218	-	-
	*		PP	2307	-	-
	*		JP	-	428	-
	*		PP	-	588	-
	*		PP	-	1720	-
	*		PP	-	-	2988
B 24-7	*		PP	4242W	-	-
	*		PP	-	588	-
	*		PP	-	-	2002
Bl. 1943-Pl. 4	*		PP	2307	-	-
B 25-1		*	PP	-	937	-
B 27-4		*	PP	1720W	-	-
B 27-6	*		PP	1025	-	-
	*		PP	1025	-	-
	*		PP	-	773	-
	*		PP	-	1025	-
	*		PP	-	1266	-
B 27-11		*	PP	588	-	-
	*		PP	2307	-	-
		*	PP	-	234W	-
B 29-10	*		PP	1720	-	-
	*		PP	-	1720R	-
	*		PP		5732	-
	*		PP	-	-	1218R
	*		PP	-	-	1464
B 30-1	*		JP	810	-	-
	*		JP	2361	-	-
	*		PP	3184W	-	-
	*		PP	7795W	-	-
	*		PP	-	2361	-
	*		PP	-	-	5400L
B 30-3	*		WP	180	-	-
	*		PP	1513	-	-
	*		PP	2710L	-	-
	*		PP	-	312	-
B 30-6	*		JP	588	-	-
	*		PP	2834	-	-
	*		PP	-	1464	-
	*		PP	-	2002	-

Symbols: W = Windfall; L = Lightning-struck; P = On BE&PQ risk plot.

Appendix Table 1 (continued)

BLOCK C.

Compartment	Status Virgin	Status Cut	Tree Spp.	Infested Trees Marked 1943	1944	1945
C 1-23	*		IC	105D	-	-
	*		PP	2002	-	-
C 2-18	*		PP	423W	-	-
	*		PP	2002W	-	-
C 2-21				-	-	-
C 2-26	*		PP	5400	-	-
	*		PP	-	1266	-
C 2-29	*		WF	3580	-	-
	*		PP	235	-	-
	*		PP	2058W	-	-
C 4-21	*		PP	308	-	-
	*		PP	428	-	-
	*		PP	773	-	-
	*		PP	1720	-	-
	*		PP	-	308	-
	*		PP	-	2307	-
C 5-18	*		PP	232	-	-
	*		PP	736	-	-
	*		PP	1170	-	-
	*		PP	1947	-	-
C 5-25	*		PP	2634	-	-
	*		PP	2988	-	-
C 5-29	*		WF	1798	-	-
	*		PP	1218W	-	-
	*		PP	-	588W	-
C 7-21	*		PP	2253	-	-
	*		PP	-	3262	-
	*		PP	-	-	148
	*		PP	-	-	232
C 7-24				-	-	-
C 8-26	*		PP	312W	-	-
	*		PP	2710W	-	-
	*		PP	-	-	2361
Bl. 1942-P. 1		*	WF	-	370L	-
C 8-30		*	WF	4850	-	-
C 9-18	*		PP	416	-	-
		*	PP	-	736L	-
C 9-22	*		WF	-	937	-
	*		PP	-	416	-
	*		PP	-	937	-
	*		PP	-	937	-
	*		PP	-	-	1170
	*		PP	-	-	1170
	*		PP	-	-	2253

Symbols: W = Windfall; L = Lightning-struck; D = Damaged mechanically.

Appendix Table 1 (continued)

BLOCK C (continued)

Compartment	Status		Tree	Infested Trees Marked		
	Virgin	Cut	Spp.	1943	1944	1945
C 10-29	*		PP	-	-	810
C 11-19		*	PP	-	-	147
C 11-22	*		PP	1416W	-	-
	*		PP	-	736	-
	*		PP	-	-	1170
	*		PP	-	-	2886L
C 11-24	*		WF	174	-	-
	*		WF	-	286	-
	*		WF	-	565	-
	*		JP	-	2307	-
	*		PP	-	1720L	-
	*		PP	-	1947	-
	*		PP	-	2634	-
	*		PP	-	-	1720L
C 11-33				-	-	-
C 12-26	*		PP	1213	-	-
C 13-20		*	PP	-	186	-
		*	PP	-	-	2988
C 13-31		*	PP	1513W	-	-
C 14-28		*	PP	810W	-	-
		*	PP	1513W	-	-
		*	WF	-	137	-
C 15-18				-	-	-
C 15-23				-	-	-
C 15-25		*	PP	2710W	-	-
		*	PP	-	186W	-
		*	WF	-	480	-

Symbols: W = Windfall; L = Lightning-struck.

Appendix Table 1 (continued)

BLOCK G.

Compartment	Status		Tree	Infested Trees Marked		
	Virgin	Cut	Spp.	1943	1944	1945
G 0-14		*	PP	-	-	440
G 2-8	*		PP	2710	-	-
	*		JP	2361	-	-
G 2-12	*		WP	1798	-	-
	*		PP	-	3790	-
	*		PP	-	2988	-
	*		JP	-	2307	-
	*		JP	-	-	5732
	*		PP	-	-	588
	*		PP	-	-	1720
G 2-14		*	PP	1464W	-	-
		*	PP	2002W	-	-
		*	PP	-	-	4242W
G 4-3	*		JP	3373	-	-
G 4-15		*	PP	1025	-	-
		*	PP	1513	-	-
		*	PP	-	147	-
		*	PP	-	147	-
		*	PP	-	147	-
		*	PP	-	-	810
G 6-10		*	PP	2058	-	-
		*	PP	-	-	235
G 6-15				-	-	-
G 7-6		*	PP	1266	-	-
G 8-10				-	-	-
Bl. 1938-Pl. 5		*	PP	3089D	-	-
G 9-10		*	PP	1769W	-	-
G 9-15		*	PP	234	-	-
G 10-1		*	PP	-	2361W	-
G 11-4		*	JP	428D	-	-
G 11-8				-	-	-
G 12-10		*	PP	-	-	1218F
G 12-14		*	PP	312W	-	-
G 12-16				-	-	-
G 14-3		*	PP	2002W	-	-
BL. 1939-P.5	*		PP	1720	-	-
	*		JP	981	-	-
G 14-6				-	-	-
G 15-10				-	-	-
G 15-13		*	PP	588	-	-
		*	PP	-	981	-
G 15-15		*	JP	773	-	-
G 17-1	*		PP	1464	-	-
G 17-3		*	PP	2307W	-	-
G 17-6				-	-	-
G 18-9				-	-	-
G 20-1	*		PP	-	3915	-
G 20-6	*		PP	1720	-	-
	*		PP	-	981	-

Symbols: W = Windfall; D = Damaged mechanically; F = Fomes annosus at root collar.

Appendix Table 1 (continued)

BLOCK P.

Compartment	Status Virgin	Status Cut	Tree Spp.	Infested Trees Marked 1943	1944	1945
P 15-33		*	PP	-	147	-
P 18-27				-	-	-
P 18-30		*	PP	-	118	-
P 18-33		*	PP	2002	-	-
Bl. 1940-P.2	*		PP	-	2307	-
P 19-25		*	PP	118W	-	-
		*	PP	-	-	1218
		*	PP	-	-	1464
P 20-32				-	-	-
P 21-28	*		PP	186	-	-
	*		PP	308	-	-
	*		PP	588	-	-
	*		PP	1464	-	-
	*		PP	1720	-	-
	*		PP	-	773	-
	*		PP	-	981	-
	*		PP	-	981W	-
	*		PP	-	1464W	-
	*		JP	-	1218	-
	*		PP	-	-	148
	*		PP	-	-	428
	*		PP	-	-	773L
P 22-24				-	-	-
P 23-26	*		PP	773	-	-
	*		PP	773	-	-
	*		PP	-	428	-
P 23-31		*	PP	1720W	-	-
P 24-21				-	-	-
P 25-19	*		PP	773	-	-
P 25-29	*		WF	2730	-	-
	*		PP	-	981	-
P 26-25	*		JP	1464	-	-
	*		PP	-	2307	-
P 27-28	*		WF	234	-	-
	*		PP	2988W	-	-
	*		PP	-	-	2307
P 28-16	*		PP	1720	-	-
	*		PP	2002	-	-
	*		PP	2307	-	-

Symbols: W = Windfall; L = lightning-struck

Appendix Table 1 (continued)

BLOCK P (continued)

Compartment	Status Virgin	Status Cut	Tree Spp.	Infested Trees Marked 1943	1944	1945
P 29-19	*		PP	1720	-	-
	*		JP	2002	-	-
	*		IC	533	-	-
	*		PP	-	-	1720L
	*		PP	-	-	1170L
	*		PP	-	-	2253
P 29-21	*		PP	1720	-	-
	*		PP	-	-	428
P 29-25				-	-	-
P 30-17	*		PP	773	-	-
	*		PP	773	-	-
	*		PP	2634W	-	-
	*		PP	-	-	428
P 30-28	*		WF	875	-	-
P 31-21	*		PP	736	-	-
	*		PP	1670	-	-
	*		PP	1947	-	-
	*		PP	2836W	-	-
	*		PP	-	-	937
	*		PP	-	-	1670
P 31-25	*		WF	464	-	-

Symbols: W = Windfall; L = lightning-struck